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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,593	01/21/2004	Eric A. Merz	117097	3233

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
VO, ANH T N	

ART UNIT	PAPER NUMBER
2861	

MAIL DATE	DELIVERY MODE
07/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,593	MERZ ET AL.	
	Examiner	Art Unit	
	Anh T.N. Vo	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-21,24,25 and 27-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *24,25 and 27* is/are allowed.

6)☒ Claim(s) *1, 5-21 and 28-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL REJECTION

Claim Rejections

Claim Rejections - 35 USC § 103

The remaining are dependent from the above rejected claims The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5-9 and 12-21, 28-30 and 32-35 are rejected under 35 USC 103 (a) as being unpatentable over Tsuchii (US 6,398,353) in view of Samsung (KR2001045304A) and further in view of Dowell (US 6,773,097).

Tsuchii discloses in Figures 1-12 an ink cartridge comprising:

- a fluid container having at least one free fluid reservoir (3) located in the container in side-by-side relationship with a negative pressure medium containing chamber (4) and fluidly connected thereto;
- an fluid delivery port directly connecting the at least one free fluid reservoir (3) and a fluid ejector (11) to deliver fluid to the fluid ejector directly from the free fluid reservoir (3);
- wherein the negative pressure medium containing chamber (4) are located, at least in part, over the fluid delivery port (Figure 1);
- wherein a filter (9) is located directly beneath more than half of both the free fluid reservoir and the negative pressure material chamber, such that the same fluid delivery port extends beneath more than half of the free fluid reservoir and more than half of the negative pressure material chamber, see Figures 1; and

- wherein the filter contacts a substantial portion of the cross-sectional area of the negative pressure material (4);
- wherein the negative pressure medium (6) is separated from and located over the filter (9, Figure 9A);
- wherein the negative pressure medium (6) is located over approximately a same amount of area as the free fluid reservoir is located over (Figure 1);
- wherein the filter (9) comprising at least one capillary element or rib (41, Figures 10) located between the filter (9) and the negative pressure material (6); and
- wherein at least one bubble chamber (space above the ink (13), Figure 1) is located in the fluid container.

However, Tsuchii does not disclose that the negative pressure medium is separated from and not in contact with the filter and the ratio of the volume of the free fluid reservoir (3) and the volume of the negative pressure medium containing chamber (4) is between about 0.3 to 1 and 3.0 to 1 as recited in claims 1 and 29, between 0.5 to 1 and 2 to 1 as recited in claim 14 or approximately 1 to 1 as recited in claims 15 and 30.

Nevertheless, Samsung suggests in Figure 1 an ink cartridge in which the porous member (130) is separated and not in contact with the filter (160) for easily replacing the filter and assembling the cartridge that would reduce manufacturing cost, sees the Abstract.

Furthemore, Dowel suggests in Figures 1B, 4 and 10-11 an ink cartridge comprising an bubbling chamber (209), a free ink chamber (214) and a negative pressure chamber (210), wherein the volume of a negative pressure chamber (210) is smaller than the volume of the free fluid chamber (214) at a predetermined ratio for improving performance capability of the cartridge and increasing volumetric efficiency of the ink supply, see lines 51-57, column 8.

It would have been obvious to a person having skill in the art at the time the invention was made to separate the filter and the negative pressure material (not in contact) of Tsuchi as suggested by Samsung for the purpose of reducing manufacturing cost and select the negative

pressure chamber of Tsuchii smaller than the free ink chamber as suggested by Dowell for the purpose of for improving performance capability of the cartridge and increasing volumetric efficiency of the ink supply.

Noted that, although Dowell does not specify the volume ratios as claimed; however, selecting an optimum ratio for optimizing the supply of ink is considered to be a matter of a design expedient for an engineer. In re Boesch, 617F.2d 272.205USPQ215(CCPA 1980). Lacking of showing any criticality, it would have been obvious to a person having skill in the art at the time the invention was made to select the volume ratios of Tsuchii as claimed for the purpose of enhancing the ink supply to the head.

With regard to claim 4, the modified ink cartridge of Tsuchii would have the portion of the filter in contact with the negative pressure material (6) which is less than the area of the filter in contact with the free fluid reservoir (3) since the negative pressure chamber is smaller than the free ink chamber.

With regard to claim 28, although Tsuchii does not suggest that the opening (10) in Figure 9A only deliver ink beneath the free fluid reservoir; however, a skilled artisan realizes that the position of the opening (10) of Tsuchii can be selectable in different location for optimizing the flow of ink. Thus, selecting the optimum size of the opening and the optimum location of the opening of Tsuchii for the purpose of optimizing the ink flow is considered to be a matter of a mechanical design for an engineer that would have been obvious at athe time of the invention.

Claims 10-11 and 31 are rejected under 35 USC 13 (a) as being unpatentable over Tsuchii (US 6,398,353) in view of Samsung (KR2001045304A) and further in view of Dowell (US 6,773,097) and Hayashi et al (US 6,698,871).

Tsuchii in view of Samsung and Dowell discloses an ink cartridge with all of the limitations of the base claim as stated above but does not disclose that the negative pressure material (6) is made of felt or non-woven material.

Nevertheless, Hayashi et al suggests in Figures 1 using a negative pressure material (1a-1c) made of non-woven material such a felt for decreasing ink residue remaining in the tank, see lines 22-32, column 10.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the pressure material as suggested by Hayashi et al in the modified ink cartridge of Tsuchii for the purpose of decreasing the ink residue remaining in the ink tank.

Response to Applicant's Arguments

The applicant argues the negative pressure generating member 6 of Tsuchii reference is locally in contact with a filter 9. The argument is moot. However, separating the porous member from the filter is suggested in the Samsung reference as stated above.

The applicant argues that Tsuchii does not suggest "locating a fluid delivery port directly beneath more than half the free fluid reservoir, and delivering fluid from the cartridge only through a portion of the ink delivery port that is beneath the free fluid reservoir. The argument is not persuasive because Thus, selecting the optimum size of the opening and the optimum location of the opening of Tsuchii for the purpose of optimizing the ink flow is considered to be a matter of a mechanical design for an engineer that would have been obvious at the time of the invention.

Applicant argues that Tschii fails to suggest "wherein the bubble chamber and the flee fluid reservoir are connected by a passage that bypasses the negative resistance material containing chamber". The argument is moot.

The applicant argues that Tsuchii does not teach or suggest a capillary rib located between negative pressure medium and the delivery port, as recited in independent claim 32. The argument is not persuasive because Figure 10 of Tsuchii clearly shows the element (41) is the capillary rib.

Allowable Subject Matter

Claims 24-25 and 27 are allowed because the prior art of record fails to suggest the "the bubble chamber and the free fluid reservoir are connected by a passage that bypasses the negative resistance material containing chamber" as combined in claim 24.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The examiner can normally be reached on Tuesday to Friday from 9:00 A.M.to 7:00 P.M..
The fax number of this Group 2861 is (571) 273-8300.

ANH T.N. VO
PRIMARY EXAMINER
July 6, 2007